

About

Post-doctoral researcher at UC Santa Barbara in search of full-time position.

Research Interests: Millimeter wave and terahertz technology, hardware-system co-design, massive MIMO, signal processing for wireless communication and sensing, next generation networks, smart cities, Internet of things

Education

- **Ph.D.** Electrical Engineering, Communications and Signal Processing **GPA: 4.0**
University of California, Santa Barbara (2017 - 2020)
Advisor: Professor Upamanya Madhow
Thesis title: Enabling next-generation mobile communication via millimeter wave technology.
- **M.Sc.** Electrical Engineering, Communications **GPA: 16.76/20**
Sharif University of Technology (2007 - 2009)
Advisor: Professor Forouhar Farzaneh
Thesis title: Channel modeling for millimeter wave (60 GHz) communication.
- **B.Sc.** Electrical Engineering, Communications **GPA: 17.75/20**
Isfahan University of Technology (2003 - 2007)
Advisor: Professor Saeed Sadri
Project title: Design and implementation of a PLL-based frequency synthesizer.

Honors and Awards

- **Honorary acceptance** to the M.Sc. program at Isfahan University of Technology for ranking among **top 5%** of undergraduate students, 2007.
- Iran Telecommunications Research Center **Graduate Research Fellowship**, 2008 and 2010.
- Accepted to the **Rising Stars in EECS** academic career workshop for women, Stanford, 2017.
- **Finalist** for **Best Student Paper** award, Asilomar, 2018.
- **Outstanding ECE Teaching Assistant** award, UCSB, Fall 2018.

Publications

1. **Maryam Eslami Rasekh**, Navid Hosseinzadeh, Upamanyu Madhow, Mark Rodwell, "Low-Resolution Architectures for Power-Efficient Scaling of mmWave Phased Array Receivers," *Springer Journal of Signal Processing Systems*, 2022.
2. Yue Dai, **Maryam Eslami Rasekh**, Seyed Hadi Mirfarshbafan, Harrison Liew, Alexandra Gallyas-Sanhueza, James Dunn, Upamanyu Madhow, Christoph Studer, Borivoje Nikolić, "An Adaptable and Scalable Generator of Distributed Massive MIMO Baseband Processing Systems," *Springer Journal of Signal Processing Systems*, 2022.
3. **Maryam Eslami Rasekh**, Bhagyashree Puranik, Upamanyu Madhow, Mark Rodwell, "In-the-field calibration of all-digital MIMO arrays," *2022 Wireless Communications and Networking Conference (WCNC)*, pp. 1389-1394, IEEE, 2022.
4. Lalitha Giridhar, **Maryam Eslami Rasekh**, Ahmet Dundar Sezer, Upamanyu Madhow, "Adaptive Space-Time Equalization with Spatial Oversampling for Misaligned LoS MIMO," *2022 Wireless Communications and Networking Conference (WCNC)*, pp. 1569-1574, IEEE, 2022.

5. **Maryam Eslami Raskeh**, Upamanyu Madhow, “Scaling Massive MIMO Radar via Compressive Signal Processing,” *2021 55th Asilomar Conference on Signals, Systems, and Computers*, pp. 226-230, 2021.
6. **Maryam Eslami Rasekh**, Navid Hosseinzadeh, Upamanyu Madhow, Mark Rodwell, “An on-off receiver array for low-power scaling of mmWave massive MIMO,” *2021 International Workshop on Signal Processing Systems (SiPS)*, 19–21 October 2021, pp. 188-193. IEEE, 2021.
7. Dai, Yue, Harrison Liew, **Maryam Eslami Rasekh**, Seyed Hadi Mirfarshbafan, Alexandra Gallyas-Sanhueza, James Dunn, Upamanyu Madhow, Christoph Studer, and Borivoje Nikolić, “A Scalable Generator for Massive MIMO Baseband Processing Systems with Beamspace Channel Estimation,” *2021 International Workshop on Signal Processing Systems (SiPS)*, pp. 182-187. IEEE, 2021.
8. **Maryam Eslami Rasekh**, Mohammed Abdelghany, Upamanyu Madhow, Mark Rodwell, “Phase noise in modular architectures for millimeter wave massive MIMO,” *IEEE Transactions on Wireless Communications*, vol. 20, no. 10, pp. 6522-6535, Oct. 2021, doi: 10.1109/TWC.2021.3074911.
9. Mohammed Abdelghany, Ali Farid, **Maryam Eslami Rasekh**, Upamanyu Madhow and Mark Rodwell, “A Design Framework for All-Digital mmWave Massive MIMO With per-Antenna Nonlinearities,” *IEEE Transactions on Wireless Communications*, vol. 20, no. 9, pp. 5689-5701, Sept. 2021, doi: 10.1109/TWC.2021.3069378.
10. Mohammed Faruk Gencel, **Maryam Eslami Rasekh**, Upamanyu Madhow, “Distributed base station: A concept system for long-range broadband wireless access,” *Electronics*, vol. 10, no. 19: 2396, 2021 <https://doi.org/10.3390/electronics10192396>
11. Mohammed Abdelghany, **Maryam Eslami Rasekh**, Upamanyu Madhow, “Scalable Nonlinear Multiuser Detection for mmWave Massive MIMO,” *2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)*, 2020, pp. 1-5, doi: 10.1109/SPAWC48557.2020.9154238.
12. **Maryam Eslami Rasekh**, Dongning Guo, Upamanyu Madhow, “Joint routing and resource allocation for millimeter wave picocellular backhaul,” *IEEE Transactions on Wireless Communications*, vol. 19, no. 2, pp. 783-794, Feb. 2020, doi: 10.1109/TWC.2019.2948624.
13. **Maryam Eslami Rasekh**, Mohammed Abdelghany, Upamanyu Madhow, Mark Rodwell, “Phase noise analysis for mmwave massive MIMO: A design framework for scaling via tiled architectures,” *2019 53rd Annual Conference on Information Sciences and Systems (CISS)*, 2019, pp. 1-6, doi: 10.1109/CISS.2019.8693033.
14. **Maryam Eslami Rasekh**, Upamanyu Madhow, “Noncoherent compressive channel estimation for mm-wave massive MIMO,” *2018 52nd Asilomar Conference on Signals, Systems, and Computers*, 2018, pp. 889-894, doi: 10.1109/ACSSC.2018.8645127.
15. **Maryam Eslami Rasekh**, Zhinus Marzi, Yanzi Zhu, Upamanyu Madhow, Heather Zheng, “Noncoherent mmWave path tracking,” *Proceedings of the 18th International Workshop on Mobile Computing Systems and Applications (HotMobile '17)*, ACM, 13–18. DOI:<https://doi.org/10.1145/3032970.3032974>
16. **Maryam Eslami Rasekh**, Dongning Guo, Upamanyu Madhow, “Interference-aware routing and spectrum allocation for millimeter wave backhaul in urban picocells,” *2015 53rd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, 2015, pp. 1-7, doi: 10.1109/ALLERTON.2015.7557347.

17. Mohammed Faruk Gencel, **Maryam Eslami Rasekh**, Upamanyu Madhow, "Noise-resilient scaling for wideband distributed beamforming," *2015 49th Asilomar Conference on Signals, Systems and Computers*, 2015, pp. 276-280, doi: 10.1109/ACSSC.2015.7421130.
18. Mohammed Faruk Gencel, **Maryam Eslami Rasekh**, Upamanyu Madhow, "Distributed transmit beamforming with one bit feedback revisited: How noise limits scaling," *2015 IEEE International Symposium on Information Theory (ISIT)*, 2015, pp. 2041-2045, doi: 10.1109/ISIT.2015.7282814.
19. Mohammed Faruk Gencel, **Maryam Eslami Rasekh**, Upamanyu Madhow, "Scaling wideband distributed transmit beamforming via aggregate feedback," *2015 IEEE International Conference on Communications (ICC)*, 2015, pp. 2356-2362, doi: 10.1109/ICC.2015.7248677.
20. **Maryam Eslami Rasekh**, Raghuraman Mudumbai, Upamanyu Madhow, "Frequency tracking with intermittent wrapped phase measurement using the Rao-Blackwellized particle filter," *2014 48th Asilomar Conference on Signals, Systems and Computers*, 2014, pp. 247-251, doi: 10.1109/ACSSC.2014.7094438.
21. **Maryam Eslami Rasekh**, Forouhar Farzaneh, "Interference analysis in an urban mesh network operating in the 60-GHz band," *ETRI Journal*, 2013.
22. **Maryam Eslami Rasekh**, Forouhar Farzaneh, "Interference control using polarization in directive 60 GHz mesh networks," *2012 Second Conference on Millimeter-Wave and Terahertz Technologies (MMWaTT)*, 2012, pp. 13-16, doi: 10.1109/MMWaTT.2012.6532156.
23. **Maryam Eslami Rasekh**, Forouhar Farzaneh, Amir Ahmad Shishegar, "A street canyon approximation model for the 60 GHz propagation channel in an urban environment with rough surfaces," *2010 5th International Symposium on Telecommunications*, 2010, pp. 132-137, doi: 10.1109/ISTEL.2010.5734012.
24. **Maryam Eslami Rasekh**, Amir Ahmad Shishegar, Forouhar Farzaneh, "A study of the effect of diffraction and rough surface scattering modeling on ray tracing results in an urban environment at 60 GHz," *2009 First Conference on Millimeter-Wave and Terahertz Technologies (MMWaTT)*, 2009, pp. 27-31, doi: 10.1109/MMWaTT.2009.5450459.

Experience

- **Teaching and Mentorship**

Spring 2021 Course Instructor UC Santa Barbara
Digital Signal Processing (undergraduate course 130B) ECE Dept.

Summer 2021 Undergraduate Internship Mentor UC Santa Barbara
FLAM Program (Future Leaders in Advanced Materials), Materials Research Laboratory, College of Engineering, & NSF Research Experiences for Undergraduates site at UCSB
Shaan Sandhu: Robust Designs for mmWave MIMO.

Fall 2018 Teaching Assistant UC Santa Barbara
Digital Communication Fundamentals Instructor: Upamanyu Madhow, ECE Dept.
(Outstanding ECE TA Award)

2011 - 2012 Lab Administrator Sharif University of Technology
Analog Circuits Lab (2 groups), Instructors: Mostafa Parniani and Reza Sarvari, EE Dept.

2010 - 2011 Teaching Assistant Sharif University of Technology
Electromagnetics, Instructor: Mahmood Akbari, EE Dept.
Microwaves and Antennas, Instructor: Forouhar Farzaneh, EE Dept.
Computer Measurement and Control, Instructor: Afshin Hematyar, CE Dept.

- **Research**

Feb 2020 - present: **Postdoctoral Researcher**

UC Santa Barbara Supervisor: Upamanyu Madhow

Feb 2013 - Oct. 2016: **Visiting Researcher**

UC Santa Barbara Supervisor: Upamanyu Madhow

Sep 2008 - Sep 2011: **Project Researcher**

Iran Telecommunication Research Center Supervisor: Amir-Ahmad Shishegar

Jun 2007 - Sep 2007: **Internship**

Isfahan Telecommunication Center Supervisor: Mohammad-Sadegh Shiravi

- **Reviews**

IEEE Transactions on Wireless Communication (TWC)

IEEE Transactions on Signal Processing (TSP)

IEEE Transactions on Mobile Computing (TMC)

IEEE Open Journal of Circuits and Systems (OJCAS)

IEEE/ACM Transactions on Networking (TNET)

Transactions on Emerging Telecommunications Technologies (ETT)

IEEE Intl. Workshop on Signal Processing Systems (SiPS 2021)

IEEE Intl. Workshop on Signal Processing Advances in Wireless Communications (SPAWC 2020)

IEEE Global Communications Conference (GLOBECOM 2019)

IEEE Intl. Conference on Communications, 5G Ultra Dense Networks Workshop (ICC 2018)

- **Presentations**

2022. Wireless Communications and Networking Conference (WCNC), *In-the-Field Calibration of All-Digital MIMO Arrays*

2022. Invited talks; UC Berkeley, NYU, UT Austin, UCLA. *Millimeter-Wave Massive MIMO: A Wireless Backbone for Smart Cities*

2021. 55th Asilomar Conference on Signals, Systems, and Computers, *Scaling Massive MIMO Radar via Compressive Signal Processing*

2021. International Workshop on Signal Processing Systems (SiPS), *An on-off receiver array for low-power scaling of mmWave massive MIMO*

2020. Invited talks; MIT, University of Minnesota Twin Cities. *Beyond 5G: Enabling the Next Generation of Wireless Communication and Sensing via Millimeter Wave and Massive MIMO Technology*

2019. 53rd Annual Conference on Information Sciences and Systems (CISS), Baltimore, MD, USA. *Phase noise analysis for mmwave massive MIMO*

2018. 52nd Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, USA. *Noncoherent compressive channel estimation for mm-wave massive MIMO* (Poster)

2015. 53rd Annual Allerton Conference on Communication, Control, and Computing (Allerton), Monticello, IL, USA. *Interference-aware routing and spectrum allocation for millimeter wave backhaul in urban picocells*

2014. 48th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, USA. *Frequency tracking with intermittent wrapped phase measurement using the Rao-Blackwellized particle filter* (Poster)

2012. Second Conference on Mm-Wave and Terahertz Technologies (MMWaTT), Tehran, Iran. *Interference control using polarization in directive 60 GHz mesh networks*

- 2010.** 5th International Symposium on Telecommunications (IST), Tehran, Iran. *A street canyon approximation model for the 60 GHz propagation channel in an urban environment with rough surfaces*
- 2009.** First Conference on Mm-Wave and Terahertz Technologies (MMWaTT), Tehran, Iran. *A study of the effect of diffraction and rough surface scattering modeling on ray tracing results in an urban environment at 60 GHz*